24889

435.36
04/08/2004
Rev. 05

NEW SITE IDENTIFICATION (NSI)

Part A – NEW SITE IDENTIFICATION INFORMATION (To be completed by the Task Lead for New Site)	
1. **Site Title:** **Contaminated Soils Beneath the PER-751 Pump House Floor Slab and Foundation** (Use known common names, location descriptors and or processes near or associated with the suspected inactive waste site.)	**Site Code:** PBF-37 **NSI Evaluation Initiation Date:** 5/27/04
2. **Task Lead For New Site:** Wendell Jolley	Phone: 6-5990
3. **NSI Coordinator: Nielsen Burch**	Phone: 6-5676
4. **Initiator or Initial Observer:** Harold Thorne	Phone: 6-8078

5. **Location of the Suspected New Site:** (A location map and/or diagram identifying the site against controlled survey points or global positioning system descriptors may be included.)
The site is situated at the former location of the PER-751 Radioactive Waste Storage Tank pump house slab/foundation. This area is approximately 200 feet north of the PER-612 building. The contaminated soil area is bounded roughly by the (former location) of the western edge of the pump house foundation slab and extends northward to a point approximating the tank"s southernmost saddle. This iregularly shaped area measures an estimated 12 ft to 15 ft wide and 20 ft long. See Figure 1.

6. **Describe the observed conditions that indicate a suspect new site:**
Field crews with the INEEL D&D program began demolishing the concrete foundation and floor slab of the PER-751 pump house on April 22, 2004. The pumphouse previously contained the recirculation pumps for the PER-751 Radioactive Liquid Waste Storage Tank. This tank stored nonhazardous radioactive wastewater from PBF reactor operations. The floor slab and foundation measured approximately 16 ft by 16 ft.

Using heavy equipment, field crews pulled the 8-inch thick concrete foundation away from the floor slab on each end of the slab because there was known radiological contamination on the top surface of the slab. This contamination associated with the floor slab/foundation was in the area near the pump on the west side of the pump house and within areas where visible staining was observed. Upon pulling the west corner of the foundation away, radiological control technicians detected (with a Ludlum 2A beta/gamma frisker) contamination in soils beneath the foundation and slab. This first area where contamination was discovered (beneath the southwest corner of the slab) also showed the highest instrument reading, with contamination recorded at 15,000 dpm beta/gamma. Other areas that were surveyed showed readings ranging from 1000 dpm beta gamma to 8000 dpm beta/gamma. Survey readings for the general contamination area were around 4000 dpm beta/gamma. On April 27, D&D placed a plastic tarp over the area of contamination and placed 2 ft of gravel over the tarp to prevent the spread of contaminated soil by blowing wind (see Figure 3).

The contamination area is estimated to cover approximate dimensions of 12 ft to 15 ft by 20 ft. Rad con technicians estimated the depth of the contamination to reach a depth of 18 in, although, contamination could extend deeper. This area of defined contamination is irregular in shape, and extends roughly from the southwest edge of the pump house slab to a point just past the former location of the southernmost PER-751 tank saddle.

NEW SITE IDENTIFICATION (NSI)

Part B – SUSPECTED NEW SITE INVESTIGATION AND RECOMMENDATION
(To be completed by the Task Lead for New Site, except Block 3 which is to be completed by the Responsible Manager)

1. **Document all existing information including historical, process, screening data, analytical data, radiological surveys etc.** (Attach supporting documentation)
The contamination is most likely attributable to a historical spill of radioactive wastewater that was stored in the 50,000-gallon tank. Extremely cold temperatures during late December 1983, coupled with inadequate heating of the pump house, resulted in freezing and subsequent rupturing of the transfer line, valves, and the transfer pump. An Unusual Occurrence Report (EG&G-84-1 - PBF-84-1, February 23, 1984) documented that "Water had filled the building floor and was flowing out on to the ground. The circulating pump which was under water was still operating." Cleanup efforts included the removal and recovery of approximately 1000 gallons of water, which was stored in two dumpsters. Also recovered and disposed of were solids consisting of soils and gravel. The initial activity in the water was determined to be 1.105E-06 uCi/ml of Cs-137. Later, samples of the soil (which had been containerized) were collected for analysis in 1988. Radiological analyses showed activities ranging from 2.8E-07 to 2.4E-04 uCi/g for Cs-137, and 2.9E-06 uCi/g for Co-60 (see Attachment 1). Sampling of the interior of the tank (smears) in 2003 identified various radioisotopes that, due to their detection in the tank, may also be present in the contaminated soils. These isotopes include Cs-137, Co-60, Ag-110M, Eu-154, Am-241, Pu-238, Pu-239/240, U-235, U-238, U-233/234, Fe-55, Ni-59, and Sr-90.

   Radiation surveys and photographs taken during the removal of the concrete slab are attached as Table 1, and figures

1a. **Is the site SWMU as defined in OSWER DIRECTIVE 9502.00-6?** ☒ **Yes** ☐ **No**

2. **Recommendation**

   ☐ Recommend not including as a new FFA/CO site. This site DOES NOT warrant further investigation, does not meet the criteria for acceptance, and should not be included under FFA/CO Action Plan.

   ☒ Recommend including as new FFA/CO site. This site DOES meet the criteria for acceptance, may warrant further investigation, and should be included under FFA/CO Action Plan.

   Recommended WAG and Operable Unit to which site should be assigned:

   WAG: 5 Operable Unit: 5-12

   Recommended further action for this site:

   Existing data indicates that the soil is contaminated with low-level radioactive contamination. The information indicates that the contamination is similar to other low-level radioactively contaminated soils remediated under the OU 5-12 Comprehensive Record of Decision (ROD). The soils at site PBF-37 will be remediated in conjunction with other remedial actions being completed for OU 5-12, and will meet or exceed the remedial action objectives established in section 8.6 of the OU 5-12 Comprehensive ROD. The remedy for contaminated soils at WAG 5 under the OU 5-12 Comprehensive ROD is removal and disposal at an appropriate low-level waste landfill.

4 Responsible Manager Certification: I have examined the information submitted in this document and believe the information to be true, accurate, and complete.

Name: Scott C. Rum Signature: Scott C. Rum Date: 9-23-04

NEW SITE IDENTIFICATION (NSI)

PART C – INEEL FFA/CO WAG MANAGERS CONCURRENCE

Site Title:	Site Code:
Contaminated Soils Beneath the PER-751 Pump House Floor Slab and Foundation	PBF-37

DOE-ID WAG Manager Concurrence: ☐ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: _____ Date: _____

Explanation:

N/A

EPA WAG Manager Concurrence: ☐ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: _____ Date: _____

Explanation:

N/A

State of Idaho WAG Manager Concurrence: ☐ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: _____ Date: _____

Explanation:

N/A

NEW SITE IDENTIFICATION (NSI)

PART D – INEEL FFA/CO RESPONSIBLE PROGRAM MANAGERS (RPM'S) CONCURRENCE

Site Title:	Site Code:
Contaminated Soils Beneath the PER-751 Pump House Floor Slab and Foundation	PBF-37

DOE-ID FFA/CO RPM Concurrence: ☒ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: Kathleen E Hain Date: 10-27/04

Explanation:

The identified contamination will be ~~treated~~ managed to meet the Remediation Goals stated in the OU 5-12 Record of Decision.

EPA ~~FFA/CO~~ RPM Concurrence: ☒ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: [signature] Date: 10-26-04

Explanation:

This contamination is consistent with contamination outlined in the WAG 5-12 ROD & EPA recommends these soils be cleaned up per the WAG/5-12 ROD Remedial Action objectives

State of Idaho FFA/CO RPM Concurrence: ☐ Concur with recommendation. ☐ Do not concur with the recommendation.

Signature: _____ Date: _____

Explanation:

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NEW SITE IDENTIFICATION (NSI)

PART D – INEEL FFA/CO RESPONSIBLE PROGRAM MANAGERS (RPM'S) CONCURRENCE	
Site Title: Contaminated Soils Beneath the PER-751 Pump House Floor Slab and Foundation	**Site Code:** PBF-37

DOE-ID FFA/CO RPM Concurrence: [X] Concur with recommendation. [ ] Do not concur with the recommendation.

Signature: Kathleen E Hain Date: 9/23/04

Explanation:

EPA FFA/CO RPM Concurrence: [ ] Concur with recommendation. [ ] Do not concur with the recommendation.

Signature: _____ Date: _____

Explanation:

State of Idaho FFA/CO RPM Concurrence: [X] Concur with recommendation. [ ] Do not concur with the recommendation.

Signature: Daryl F. Koch Date: 9/23/04

Explanation:

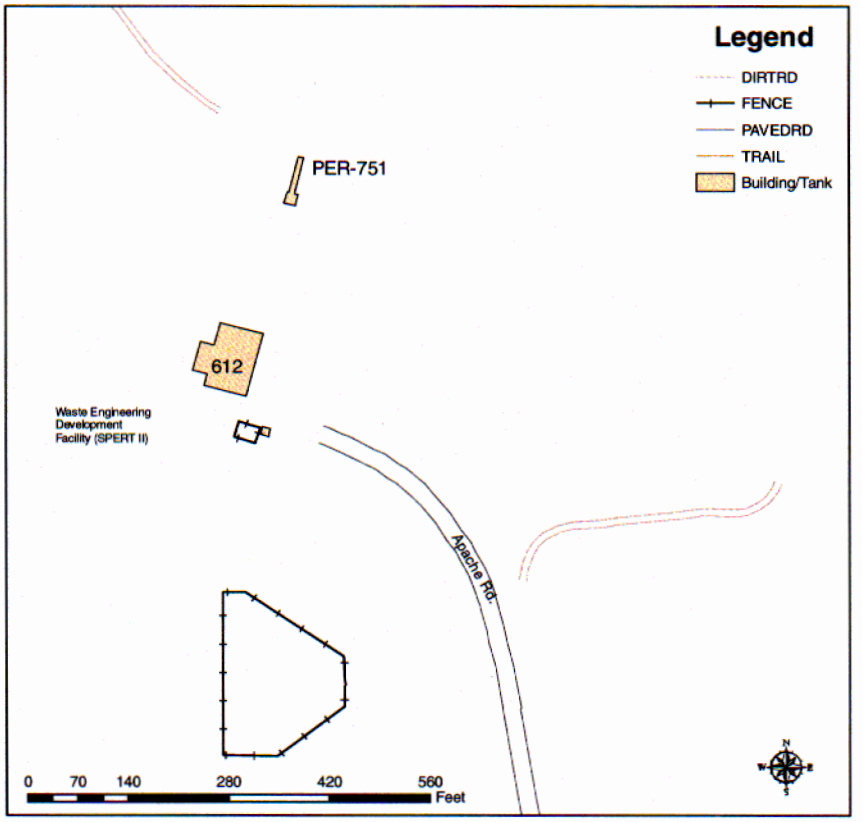
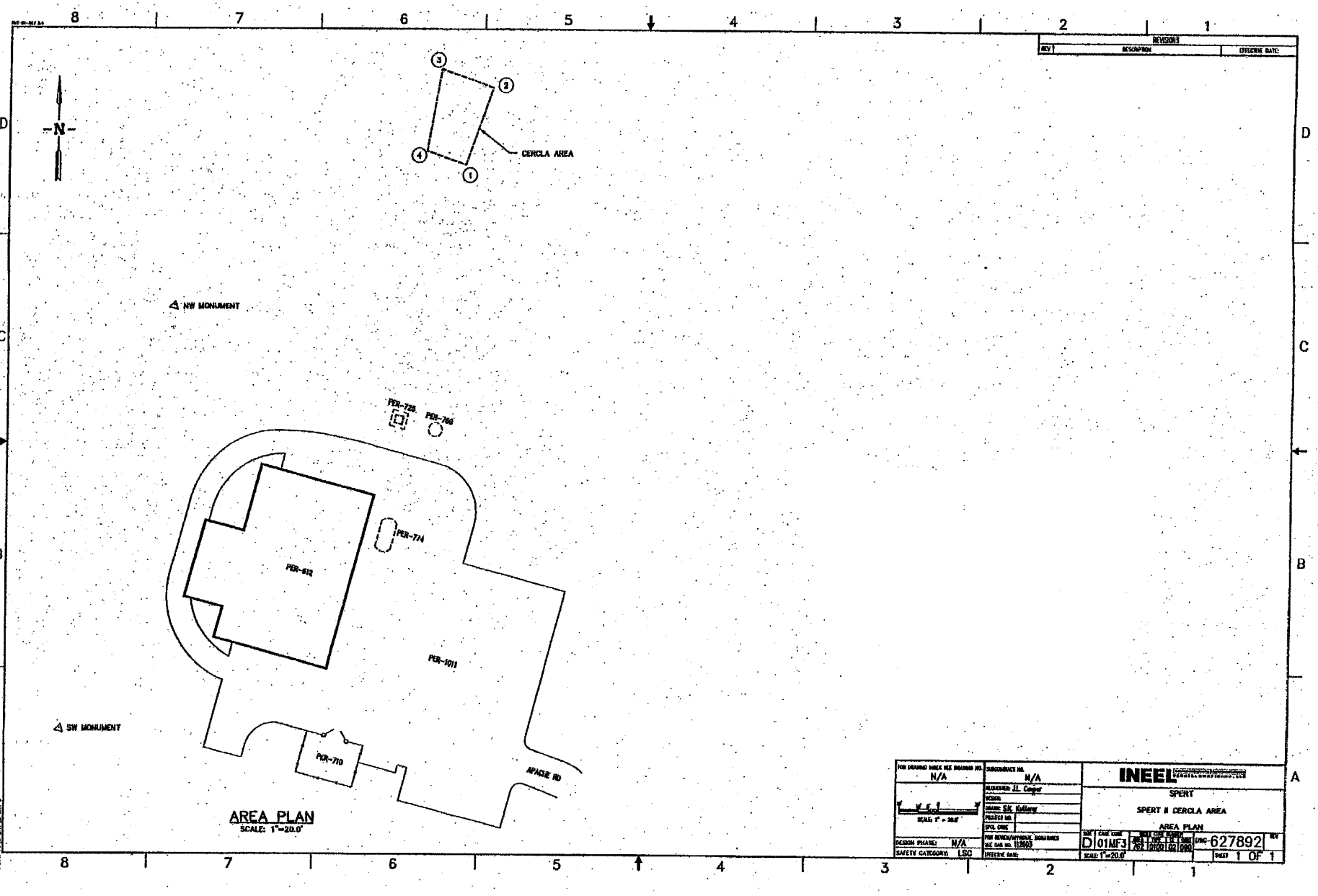


Figure 1: Map of PER-751 site location

Figure 2: Map of contaminated areas.



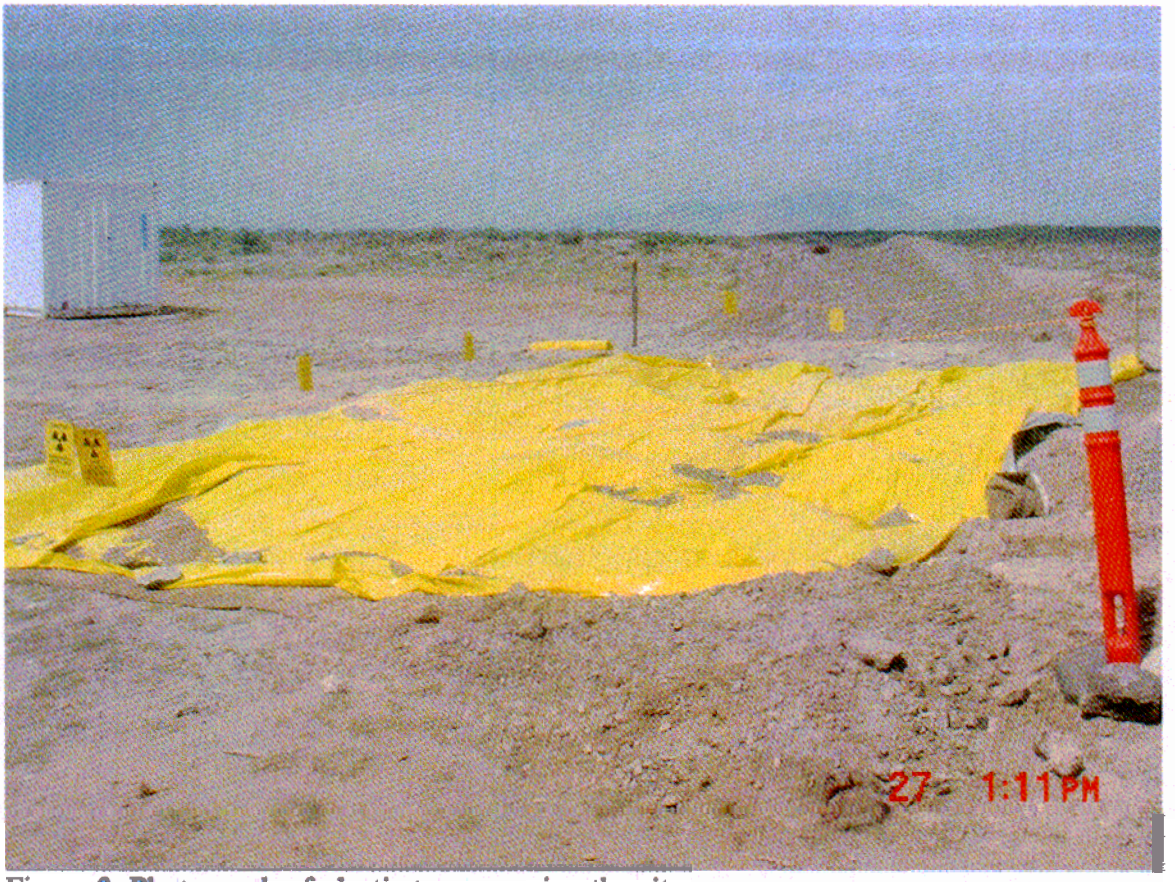


Figure 3: Photograph of plastic tarp covering the site.

Attachment 1
RML Sample Analysis

EG&G Idaho

"Providing research and development services to the government"

RECEIVED
D. W. COLLING
JAN 25 1989

INTEROFFICE CORRESPONDENCE

Date: January 25, 1989

To: D. W. Colling

From: K. C. Wright KCW

Subject: [redacted] KCW-5-89

Action Assignee
Assistance Assignee(s)
Action Due Date
Action Completion Date
Assigned By
Info Copies

This letter is in regards to three samples which were collected from the Spert IV Storage Yard (green dumpsters). Greg Gerber requested that we take these samples and have them analyzed for radiochemistry; EP Toxicity for metals; BNAs (Semivolatile Organics); Volatile Organics; and PCBs/Pesticides. I have enclosed a copy the laboratory reports regarding the parameters specified. Each dumpster had a particular number which corresponds to the last digit in each of the field sample identification numbers.

As for the chemical constituents which have been identified through the laboratory analysis; two of the three dumpsters do not contain significant levels of hazardous materials. These two dumpsters are marked #1 and #2 (as they are setting in the storage yard, they are the second and third from the left as you walk through the gate). They are also the only ones which had any material to be sampled without scrapping the sides or bottom of the dumpster. However, the dumpster which is labelled D130 contained a higher concentration than allowed by 40 CFR Part 261.24. The maximum level allowed is 5.0 mg/L and the sample had 15.0 mg/L. In the BNA (Base Neutral Acid) data you will also notice that this sample contained many unknown compounds; these compounds can be associated with the instrumentation or be present simply through background readings. It is my opinion, that this information is not pertinent to the sample.

Lead

We have also included a copy of the results from the Radiation Measurements Laboratory so you and your staff may be able to classify them as radiological or not. From an Environmental standpoint these sample results exceed the Derived Concentration Guides for Cesium 137 in soil. Thus indicating the concentration to be above environmental levels.

NATURE SAVER™ FAX MEMO 01616	Date 7/1/04	for pages 8
To Wendell Tolley	From Walker Howell	
Co./Dept.	Co.	
Phone # 6-5990	Phone # 6-6530	
Fax # 6-8632	Fax #	

Thank you for allowing us the opportunity to sample this material. It has been a pleasure working with you and your staff. If you have any further questions or comments please feel free to contact me 6-2299 or Roger Wilhelmsen at 6-9401.

kcw

Attachments;
As Stated

cc: D. L. Bates
G. D. Gerber
T. G. Hedahl
B. F. Russell
R. N. Wilhelmsen
K. C. Wright Files
Central Files

EG&G Idaho

INTEROFFICE CORRESPONDENCE

Date: September 8, 1988

To: ~~R. N. Wilhelmsen~~

From: L. D. Koeppen *Don Koeppen*

Subject: RADIATION MEASUREMENTS LABORATORY (RML) GAMMA-RAY ANALYSES OF PBF/SPERT-II SOIL TYPE SAMPLES - LDK-55-88

The Radiation Measurements Laboratory (RML) ~~counted/analyzed three soil~~ type samples ~~from~~ SPERT-II. The samples were in 450 cm^3 squat jars in an abnormal geometry and were non-homogenous. Due to the matrix (geometry) of the samples, large uncertainties were arbitrarily assigned to the results. Each sample was counted for two hours in close geometry with Ge(Li) detectors. The activity determined on each sample is listed below and decay corrected to 9/2/88.

Sample ID	Radionuclide	Activity (u Ci/gram)
IST2090188-1	^{137}Cs	(2.8 ± 1.6) E-7
IST2090188-2	^{60}Co	(2.9 ± 1.5) E-6
	^{137}Cs	(1.7 ± 0.9) E-4
IST2080188-3(D 130)	^{137}Cs	(2.4 ± 1.2) E-4

In addition to the uncertainty resulting from counting statistics, estimates of the uncertainty in the sample geometry (50%) and in the detector efficiency (5%) have been included. The uncertainties have been propagated in quadrature and are shown as one estimated standard deviation.

clt

cc: R. J. Gehrke
Central Files
L. D. Koeppen File